

Docket No.: 27592-00837-US
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Arto Palin et al.

Application No.: 10/773,287

Confirmation No.: 8738

Filed: February 9, 2004

Art Unit: 2618

For: Synchronization of Time-Frequency Codes

Examiner: Wen Wu Huang

APPEAL BRIEF

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This brief is filed in furtherance of a Notice of Appeal filed on June 16, 2009 and upon receipt of a Notice of Panel Decision from Pre-Appeal Brief Review mailed on July 7, 2009. Applicants believe that any fees required in conjunction with this submission are indicated on an accompanying paper. However, should any further fees be due, including if such paper(s) be inadvertently omitted, Applicants authorize such fees to be charged to Deposit Account No. 22-0185, under Order No. 27592-00837-US, from which the undersigned is authorized to draw.

This brief contains items under the following headings as required by 37 C.F.R. § 41.37 and M.P.E.P. § 1206, which begin on the pages as indicated:

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I. REAL PARTY IN INTEREST

The real party in interest for this appeal is:

Spyder Navigations L.L.C.

II. RELATED APPEALS, INTERFERENCES, AND JUDICIAL PROCEEDINGS

There are no other appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

A. Total Number of Claims in Application

There are 28 claims pending in this application.

B. Current Status of Claims

1. Claims canceled: 1-25, 29, 37
2. Claims withdrawn from consideration but not canceled: None
3. Claims pending: 26-28, 30-36, 38-55
4. Claims allowed: None
5. Claims rejected: 26-28, 30-36, 38-55

C. Claims On Appeal

The claims on appeal are Claims 26-28, 30-36, and 38-55.

IV. STATUS OF AMENDMENTS

Applicants did not file an Amendment After Final Rejection; all previous amendments have been entered.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Briefly, various embodiments of the invention may relate to methods or apparatus addressing establishment of timing for wireless transmission of frequency-hopped transmission signals.

The application includes four independent claims. Independent Claim 26 is directed to a method, independent Claim 34 is directed to an apparatus, and independent Claim 42 is directed to a device.

Claim 26 is directed to a method of transmitting information by a wireless communication device. An energy level of a monitored frequency band of a selected frequency hopping pattern is monitored. Data is then transmitted on a transmit frequency band of the frequency hopping pattern if the energy level indicates that a particular condition has been met in the monitored frequency band. Furthermore, a timing of further data transmission according to the frequency hopping pattern is determined based on a time at which the particular condition has been met. Exemplary embodiments that include these elements may be found, e.g., in Figs. 9A and/or 9B and in the specification at paragraphs 51-54.

To further explain one of the embodiments and its relationship to the claim elements, Fig. 9A shows a conceptual frequency hopping system having three frequency bands (Band 1, Band 2, and Band 3), and being used by devices on two channels (A and B). Packets are transmitted on Channels A and B (e.g., A₁, B₁, etc.) using a frequency hopping pattern, as shown (in Fig. 9A, the pattern is Band 1, Band 2, Band 3, Band 1, Band 2, Band 3,...); as noted in paragraph 51, the patterns may also be different. The transmitting device on Channel B is assumed to be the one that is attempting to begin transmitting, and which, therefore, needs to establish frequency hopping pattern timing. As discussed, e.g., in paragraph 52, the device on Channel B may monitor Band 1, e.g., by using carrier sensing, during a sensing period 902 shown in Fig. 9A. During period 902, the sensing detects energy from packet A₁ in Band 1. The device on Channel

B continues to monitor (still in period 902) and determines when packet A₁ is complete, i.e., when there is no longer a transmission in Band 1. The device on Channel B then waits a predetermined period, indicated by period 904 in Fig. 9A, and begins transmitting according to the hopping pattern, as shown. That is, timing for the hopping pattern has been established on Channel B such that the packets using Channels A and B will not collide (by being transmitted in the same band at the same time).

Claim 34 is directed to a wireless transmitter apparatus, and the apparatus is presented in means-plus-function format, based on the elements of Claim 26. That is, independent Claim 34 recites means for monitoring and means for transmitting data. Such a wireless transmitter apparatus is shown and described, e.g., in Fig. 12 and at paragraphs 69-86. Paragraphs 82 and 83, in particular, describe one embodiment of how the device of Fig. 12 may operate. In particular, after a hopping pattern has been identified, carrier sensing module 1206 receives a command to monitor a frequency band and provides detection signals 1256 that indicated the presence or absence of energy in the monitored band. Based on signals 1256, timing controller 1208 may determine when to generate transmit signal 1234, which indicates to transmit buffer 1212 when to begin transmitting packets. Therefore, one may, for example, interpret the carrier sensing module 1206 and timing controller 1208 on the means for monitoring, and the transmit buffer 1212 (and/or further elements 1214, 1216, 1218, 1220) of the transmit portion of Fig. 12 on the means for transmitting. Alternatively, one may interpret sensing module 1206 as the means for monitoring and timing controller 1208 and transmit buffer 1212 (and/or further elements as noted above) as the means for transmitting.

Claim 42 is directed to a wireless communication device. The elements of this claim may be found, e.g., in Fig. 12 and at paragraphs 69-86. The first element of the claim is "a sensing module to monitor an energy level of a monitored frequency band of a frequency hopping pattern." As noted, for example, in paragraph 82, a sensing module 1206 may be used to monitor a frequency band of a frequency hopping pattern and to provide detection signals 1256 that indicated the presence or absence of energy in the monitored band. The claim then recites "a timing controller coupled to the sensing module to provide an indication of said monitored frequency band to said sensing module, to receive one or more detection signals from said sensing module, and to determine if the one or more detection signals indicate that a particular

condition has been satisfied by the monitored frequency band.” As discussed above, timing controller 1208 is coupled to sensing module 1206, and it receives detection signals 1256 indicating the presence or absence of energy in the monitored frequency band. As discussed further in paragraph 82, the timing controller 1208 sends a command 1254 to the sensing module 1206 to designate a frequency band for monitoring. Also, in paragraph 83, the timing controller 1208 determines when transmission may commence, based on the detection signals 1256. Embodiments of ways in which this determination may be done are found, e.g., in Figs. 9A and 9B, as discussed above. The claim then recites “a transmit module coupled to the timing controller to receive an indication to transmit data in a transmit frequency band of the selected frequency hopping pattern, wherein said indication is to be generated by the timing controller subsequent to the timing controller determining the particular condition has been satisfied by the monitored frequency band.” As discussed, e.g., in paragraph 83, “[b]ased on signals 1256, timing controller 1208 determines when transmissions may commence for device 1200. At the occurrence of such a determined time, timing controller 1208 generates transmit signal 1234. As described above, this signal instructs transmit buffer 1212 to send one or more stored packets to IFFT module 1214 so that transmissions may commence according to the selected frequency hopping pattern.” That is, transmit signal 1234 indicates to a transmit module (which begins at transmit buffer 1212) when to begin transmitting. Finally, the claim recites, “wherein a timing of further data transmission according to the selected frequency hopping pattern is determined based on a time at which the particular condition is satisfied.” As discussed above, this is shown and discussed in conjunction with Figs. 9A or 9B, according to various embodiments.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 26, 27, 31-35, 39-43, 45 and 50-55 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Publication No. 2002/01679931 to Jang et al. (hereinafter “Jang et al.”) in view of U.S. Patent No. 6,256,334 to Adachi (hereinafter “Adachi”).

Claims 28, 36 and 44 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Jang and Adachi as applied to claims 26, 34 and 42 and in further view of U.S. Patent Publication No. 2003/0206561 to Schmidl (hereinafter “Schmidl”).

Claims 30, 38 and 46 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Jang and Adachi as applied to claims 26, 34 and 42 and in further view of U.S. Patent No. 6,333,937 to Ryan (hereinafter “Ryan”).

Claims 47 and 48 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Jang and Adachi as applied to claim 42 and in further view of U.S. Patent No. 7,110,472 to Sakoda (hereinafter “Sakoda”).

Claim 49 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Jang and Adachi as applied to claim 42 and in further view of U.S. Patent Publication No. 2003/0078006 to Mahany (hereinafter “Mahany”).

VII. ARGUMENTS

A. INDEPENDENT CLAIMS 26, 34, AND 42 ALL CONTAIN ELEMENTS RELATING TO THE SETTING OF A TRANSMIT TIMING THAT ARE NOT DISCLOSED OR SUGGESTED BY THE COMBINATION OF JANG ET AL. WITH ADACHI.

Applicants respectfully submit that independent Claims 26, 34, and 42, from which all other claims depend, all contain elements that are not disclosed or suggested by the combination of Jang et al. with Adachi. For example, Claim 26 includes the recitation, “transmitting data on a transmit frequency band of said selected frequency hopping pattern *if said energy level indicates a particular condition of said monitored frequency band*, wherein a timing of further data

transmission according to the selected frequency hopping pattern is determined based on a time at which the particular condition is met.” (Emphasis added.) Similarly, Claim 34 includes the recitation, “means for transmitting data on a transmit frequency band of said selected frequency hopping pattern *if said energy level indicates a particular condition of said monitored frequency band*, wherein a timing of further data transmission according to the selected frequency hopping pattern is determined based on a time at which the particular condition is met.” (Emphasis added.) Finally, Claim 42 includes the recitations, “*a sensing module to monitor an energy level of a monitored frequency band* of a selected frequency hopping pattern,” “*a timing controller...to receive one or more detection signals from said sensing module, and to determine if the one or more detection signals indicate that a particular condition has been satisfied by the monitored frequency band,*” and “*wherein a timing of further data transmission according to the selected frequency hopping pattern is determined based on a time at which the particular condition is satisfied.*” (Emphases added.)

At page 3, the Office Action admits, “Jang [et al.] is silent to teaching that wherein a timing of further data transmission according to the selected frequency hopping pattern is determined based on a time at which the particular condition is met;” in connection with the rejection of Claim 26. Similar statements are found in the Office Action at pages 5 and 7, regarding the other independent claims. In each case, however, the Office Action alleges that Adachi, at col. 17, lines 48-60, teaches the claim elements not taught by Jang et al. Applicants respectfully disagree.

In order to understand the cited portion of Adachi, it is necessary to start at col. 17, line 20. Following from lines 20-60, Adachi explains that when a base station is activated, it sends out a probe to determine if there are nearby base stations (see lines 25-33). If the probe is received by a neighboring base station, a probe response signal will be received from the neighboring base station (see lines 34-40). If a probe response signal is received, “the search section 50a obtains, from the received probe response, the pattern and time (the timer value) of frequency hopping performed in another radio LAN 10 (another radio base station 1)” (lines 49-53). Then, “[t]he FH selection/setting section 50b selects, as the frequency hopping pattern of the radio base station itself, a frequency hopping pattern which is completely the same as that of the thus-obtained frequency hopping..., and sets the timer 50c to a value different from the timer

value (time) obtained from the probe response signal" (lines 53-58). In other words, the timing of frequency hopping is based on the time value of a received signal, providing the timing information of a neighboring LAN. *This is completely different from the claim elements noted above*, in which "a timing of further data transmission according to the selected frequency hopping pattern is determined *based on a time at which the particular condition is met.*" (Emphasis added.) The phrase, "the particular condition," refers to the condition that is based on detection of an energy level of the monitored frequency band (in particular, for example, in Claims 26 and 34, we have, "said energy level indicates a particular condition of said monitored frequency band;" in Claim 42, we have, "to determine if the one or more detection signals indicate that a particular condition has been satisfied by the monitored frequency band," where "the one or more detection signals" are received from "a sensing module to monitor an energy level of a monitored frequency band of a selected frequency hopping pattern"). *There is simply no such "condition" met in Adachi, based on an energy level, and from whose timing (i.e., the time at which the condition is met) a timing of further data transmission is determined; timing in Adachi is determined based on a received timing indication.*

The Advisory Action mailed on June 2, 2009 appears to argue that the "condition" of the claims is when the signal is received and that a timer (relating to future data transmission) is set if the signal is received. However, this interpretation of the cited references (particularly, Adachi) fails in at least two ways. First, the reception of a signal is not the same as a condition relating to a detected energy level, as discussed above. Second, if the timer of Adachi is being set based on information in the received signal, it is not being set based on a time when the at which the signal is received (i.e., the timing of further data transmission in Adachi is not based on when the signal is received, which the Office Action/Advisory Action are interpreting as the "condition," but rather on data contained in the signal).

It is, for at least these reasons, respectfully submitted that Claims 26, 34, and 42, as well as their respective dependent claims, are allowable over the cited references (with respect to the dependent claims rejected based on further references, Applicants respectfully submit that the further references fail to cure the deficiencies of Jang et al. and Adachi).

B. INDEPENDENT CLAIMS 26, 34, AND 42 ALL CONTAIN ELEMENTS RELATING TO A MONITORED ENERGY LEVEL INDICATING A CONDITION UPON WHICH

TRANSMIT TIMING IS BASED THAT ARE NOT DISCLOSED OR SUGGESTED BY THE COMBINATION OF JANG ET AL. WITH ADACHI.

As discussed above, for example, Claim 26 includes the recitation, “transmitting data on a transmit frequency band of said selected frequency hopping pattern *if said energy level indicates a particular condition of said monitored frequency band, wherein a timing of further data transmission according to the selected frequency hopping pattern is determined based on a time at which the particular condition is met.*” (Emphasis added.) Similarly, Claim 34 includes the recitation, “means for transmitting data on a transmit frequency band of said selected frequency hopping pattern *if said energy level indicates a particular condition of said monitored frequency band, wherein a timing of further data transmission according to the selected frequency hopping pattern is determined based on a time at which the particular condition is met.*” (Emphasis added.) Finally, Claim 42 includes the recitations, “a sensing module *to monitor an energy level of a monitored frequency band* of a selected frequency hopping pattern,” “*a timing controller...to receive one or more detection signals from said sensing module, and to determine if the one or more detection signals indicate that a particular condition has been satisfied by the monitored frequency band,*” and “*wherein a timing of further data transmission according to the selected frequency hopping pattern is determined based on a time at which the particular condition is satisfied.*” (Emphases added.) The recitations from Claims 26 and 34 include that “*said energy level indicates a particular condition.*” (Emphasis added.) Similarly, the recitations from Claim 42 including “*to monitor an energy level of a monitored frequency band*” and “*to receive one or more detection signals...and to determine if the one or more detection signals indicate that a particular condition has been satisfied by the monitored frequency band.*” (Emphases added.) In other words, in Claim 42, detection signals relate to the monitoring of an energy level of a monitored frequency band, and these detection signals (i.e., based on an energy level of the monitored frequency band) indicate if a particular condition has been satisfied.

In each of these claims, an energy level is monitored, and there is a determination made, based on the energy level monitoring, as to whether some particular condition is met. Timing of further data transmission is then based on the time at which the particular condition is met.

Putting this all together, the claims effectively include that *an energy level indicates a condition that determines data transmission timing.*

As discussed, e.g., in the Office Action of March 23, 2009, with respect to Claim 26:

Regarding claim 26, Jang teaches a method of transmitting information by a wireless communication device (see Jang, fig. 6, Bluetooth device, para. [0029]), the method comprising:

monitoring an energy level (see Jang, fig. 6, measurement unit 61; para. [0031] and fig. 7, S710, para. [0034]) of a monitored frequency band of a selected frequency hopping pattern (see Jang, para. [0033]); and

transmitting data on a transmit frequency band of said selected frequency hopping pattern (see Jang, fig. 7, S730, S740 and S750; para. [0036]) if said energy level indicates a particular condition of said monitored frequency band (see Jang, fig. 7, S720, para. [0035]), wherein a timing of further data transmission is determined based on a time at which the particular condition is met (see Jang, para. [0032-0033], 250 micro-second standby time).

However, Applicants respectfully disagree with this reasoning.

In particular, as noted above, the Office Action alleges that “a timing of further data transmission is determined based on a time at which the particular condition is met,” citing Jang et al. at paragraphs 32-33, noting the mention of a 250 microsecond standby time. In paragraph 32, Jang et al. mentions, “a standby time of at least 250 μ s is given to switch to a transmission mode after receiving data.” Paragraph 33 says, “Thereafter, when receiving the data from a predetermined transmission slot, the wireless communication system 65 varies a frequency of a transmitter/receiver to a frequency of a channel to be used in the transmission slot to be allocated (S700). That is, the wireless communication system 65 maintains the reception mode for the standby time, and varies the frequency to the frequency of the channel to be used in the

transmission slot according to the previously decided frequency hopping pattern.” Jang et al., paragraph 33. Applicants note that there is no discussion here regarding the monitoring of an energy level or any condition relating to an energy level. Jang et al. is merely discussing that there is some standby time provided for, presumably to allow switching between reception mode and transmission mode, prior to data transmission.

Continuing further, paragraph 34 of Jang et al. further recites, “A signal received through the channel used in the transmission slot for a switching time of the transmission and reception modes (i.e., standby time) is inputted to the measurement unit 61. The measurement unit 61 measures the strength of the received signal, thereby measuring a channel state of the transmission slot to be allocated (S710).” In other words, based on paragraph 34, the system of Jang et al. requires some type of special signal to be received and measured during a standby time, and, as stated in paragraph 35, “the judgment unit 62 judges data transmission by comparing the strength of the received signal with the strength of a reference signal (S720),” to determine whether the transmission slot has a “good channel state.” However, nowhere is the timing of transmission connected to a time when the measurement indicates a “good channel state.” Rather, based on the discussion in Jang et al., the transmit timing is set, and the measurement merely indicates whether or not to proceed with transmission. *That is, there is no teaching or suggestion that an energy level measured in Jang et al. in any way determines transmission timing.* Applicants note that similar reasoning is applicable in connection with the rejections of independent Claims 34 and 42.

As noted above, in Section VII.A, Adachi also fails to connect an energy level measurement with a determination of transmission timing.

It is, for at least these further reasons, respectfully submitted that Claims 26, 34, and 42, as well as their respective dependent claims, are allowable over the cited references (with respect to the dependent claims rejected based on further references, Applicants respectfully submit that the further references fail to cure the deficiencies of Jang et al. and Adachi).

VIII. CLAIMS

A copy of the claims involved in the present appeal is attached hereto as Appendix A.

IX. EVIDENCE

No evidence pursuant to §§ 1.130, 1.131, or 1.132 or entered by or relied upon by the examiner is being submitted.

X. RELATED PROCEEDINGS

No related proceedings are referenced in II. above, so no Appendix is included.

Dated: July 28, 2009

Respectfully submitted,

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APPENDIX A

Claims Involved in the Appeal of Application Serial No. 10/773,287:

26. A method of transmitting information by a wireless communication device, the method comprising:

monitoring an energy level of a monitored frequency band of a selected frequency hopping pattern; and

transmitting data on a transmit frequency band of said selected frequency hopping pattern if said energy level indicates a particular condition of said monitored frequency band, wherein a timing of further data transmission according to the selected frequency hopping pattern is determined based on a time at which the particular condition is met.

27. The method of Claim 26, wherein said transmit frequency band is the same as said monitored frequency band, and wherein said particular condition comprises a condition that a pre-existing transmission in the monitored frequency band has been completed.

28. The method of Claim 26, wherein said transmit frequency band is different from said monitored frequency band, and wherein said particular condition comprises a condition that there is no pre-existing transmission in the monitored frequency band.

30. The method of Claim 26, wherein said data comprises one or more orthogonal frequency-division multiplexing (OFDM) symbols.

31. The method of Claim 26, further comprising:

selecting said selected frequency hopping pattern based on a determination of use of one or more frequency hopping patterns within a communication range of the wireless communication device.

32. The method of Claim 31, wherein said determination is based on at least one process selected from the group consisting of: detecting one or more frequency hopping patterns; and receiving one or more notifications of frequency hopping patterns being used.

33. The method of Claim 31, wherein said selecting said selected frequency hopping pattern comprises selecting a frequency hopping pattern that is being used within the communication range of the wireless communication device.

34. A wireless transmitter apparatus comprising:

means for monitoring an energy level of a monitored frequency band of a selected frequency hopping pattern; and

means for transmitting data on a transmit frequency band of said selected frequency hopping pattern if said energy level indicates a particular condition of said monitored frequency band, wherein a timing of further data transmission according to the selected frequency hopping pattern is determined based on a time at which the particular condition is met.

35. The apparatus of Claim 34, wherein said transmit frequency band is the same as said monitored frequency band, and wherein said particular condition comprises a condition that a pre-existing transmission in the monitored frequency band has been completed.

36. The apparatus of Claim 34, wherein said transmit frequency band is different from said monitored frequency band, and wherein said particular condition comprises a condition that there is no pre-existing transmission in the monitored frequency band.

38. The apparatus of Claim 34, wherein said data comprises one or more orthogonal frequency-division multiplexing (OFDM) symbols.

39. The apparatus of Claim 34, further comprising:

means for selecting said selected frequency hopping pattern based on a determination of use of one or more frequency hopping patterns within a communication range of the wireless transmitter apparatus.

40. The apparatus of Claim 39, wherein the means for selecting comprises:
means for determining use of one or more frequency hopping patterns within the communication range of the wireless transmitter apparatus, wherein said means for determining includes at least one means selected from the group consisting of: means for detecting one or more frequency hopping patterns; and means for receiving one or more notifications of frequency hopping patterns being used.
41. The apparatus of Claim 39, wherein said means for selecting said selected frequency hopping pattern is to select a frequency hopping pattern that is being used within the communication range of the wireless communication device.
42. A wireless communication device comprising:
a sensing module to monitor an energy level of a monitored frequency band of a selected frequency hopping pattern;
a timing controller coupled to the sensing module to provide an indication of said monitored frequency band to said sensing module, to receive one or more detection signals from said sensing module, and to determine if the one or more detection signals indicate that a particular condition has been satisfied by the monitored frequency band; and
a transmit module coupled to the timing controller to receive an indication to transmit data in a transmit frequency band of the selected frequency hopping pattern, wherein said indication is to be generated by the timing controller subsequent to the timing controller determining the particular condition has been satisfied by the monitored frequency band, and wherein a timing of further data transmission according to the selected frequency hopping pattern is determined based on a time at which the particular condition is satisfied.

43. The device of Claim 42, wherein said transmit frequency band is the same as said monitored frequency band, and wherein said particular condition comprises a condition that a pre-existing transmission in the monitored frequency band has been completed.
44. The device of Claim 42, wherein said transmit frequency band is different from said monitored frequency band, and wherein said particular condition comprises a condition that there is no pre-existing transmission in the monitored frequency band.
45. The device of Claim 42, wherein said transmit module is further to continue to transmit further data according to said selected frequency hopping pattern according to said timing.
46. The device of Claim 42, wherein said data comprises one or more orthogonal frequency-division multiplexing (OFDM) symbols.
47. The device of Claim 42, wherein said transmit module comprises:
a transmit buffer coupled to receive said indication from the timing controller; and
a transform device coupled to an output of said transmit buffer to process data from the output of the transmit buffer to provide an output signal.
48. The device of Claim 47, wherein said transform device comprises an inverse fast Fourier transform (IFFT) device.
49. The device of Claim 42, wherein said one or more detection signals comprise one or more signals indicating one or more transitions in an energy level of the monitored frequency band.
50. The device of Claim 42, wherein said sensing module is further to sense the use of one or more frequency hopping patterns within a communication range of the device, and wherein the timing controller is to select said selected frequency hopping pattern based at least in part on one or more results obtained by the sensing module.

51. The device of Claim 42, wherein said device further comprises:
a receive module to receive one or more notifications about use of one or more frequency hopping patterns within a communication range of said device;
wherein the timing controller is to select said selected frequency hopping pattern based at least in part on said one or more notifications.

52. (Previously Presented) The device of Claim 42, wherein said selected frequency hopping pattern corresponds to a frequency hopping pattern in use within a communication range of said device.

53. The method of Claim 27, wherein transmitting data in the transmit frequency band is to commence following a predetermined time delay following completion of said pre-existing transmission.

54. The apparatus of Claim 35, wherein transmitting data in the transmit frequency band is to commence following a predetermined time delay following completion of said pre-existing transmission.

55. The device of Claim 43, wherein transmitting data in the transmit frequency band is to commence following a predetermined time delay following completion of said pre-existing transmission.